

## **SCHEDULING WITH DELAYED GRAPHS FOR COMMUNICATION NETWORKS**

### **ABSTRACT OF THE DISCLOSURE**

A network of nodes interconnected by links, such as a wavelength division  
5 multiplexing (WDM) ring network, is modeled by a delayed graph in which propagation  
delay between nodes is accounted for. Given the delayed graph, a traffic matrix for an  
admissible traffic pattern is scheduled over a frame period. Scheduling of the traffic  
matrix formulates a set of scheduling constraints based on the delays and decomposes the  
traffic matrix into a set of transmission matrices. Each of the set of transmission matrices  
10 is scheduled over the frame period.